EDUCATION

Devoted to the Science, Art, Philosophy and Literature of Education

VOL. XXIV JANUARY, 1904 No. 5

University Training and the Doctoral Degree[1]

ROBERT MACDOUGALL, NEW YORK UNIVERSITY, NEW YORK

THE problem of the functional relations of our various institutions of higher learning is presented in many forms. The college has been eager to add research apparatus and methods to its equipment; the university finds itself halting between the enforcement of a high and proper standard of matriculation and the admission of courses adapted to insufficiently prepared students; the professional school is not content to give only a practical training in its special branch, but seeks also to offer as full an opportunity as possible for the study of those pure sciences to which the practice of the student's craft is most intimately related.

The differentiation of these various classes of work, which does not depend upon the nature of the educational material but is a question of the method and point of view under which it is treated, is forced upon our attention only when it affects the problem of organization. It is this which has made the dis-

[1] Phi Beta Kappa address, read before the New York University Chapter, June 3, 1903.

crimination of their functions important to-day. For the purposes of practical economy and success in the ordering of our educational program, what is the best distribution we can make of cultural, scientific and technological studies? What office shall the high school, the college, the university and the professional school fulfill, and how shall these be made most adaptable to the individual and still ensure a liberal education? These are the fundamental considerations which underlie the many proposed changes which are discussed to-day, proposals to extend high school training, to raise the standard of collegiate matriculation, to shorten its curriculum, to combine collegiate with professional instruction, to increase the period of professional study, to differentiate institutions into types specifically collegiate and university.

Among the many aspects which these problems present I have selected the last mentioned, and wish to pass in review the characteristics which differentiate university from collegiate education, and to emphasize certain principles which I believe it essential to hold fast in developing this most advanced grade of study.

But first a word concerning one or two general bearings of collegiate education. The relation of scholarship to character has frequently perplexed discussions of educational polity through a confusion of means and end. The values of intellectual discipline are not absolute. They are related to the whole system of interests which the life of the individual comprises, and that education which has not tended to increased sanity and poise of character and a wider range of appreciation has missed its final justification. But the attainment of these ulterior goods is subordinate to the primary aim of orienting the student in the knowledge of his time, and of training his mind in habits of logical thought. The function of education is imperiled when this end is lost sight of, and the teacher conceives his chief duty to be the establishment of moral habits and the upbuilding of character, instead of the training and informing of the mind.

All life is indeed disciplinary, and every experience rightly treated should mould the will and enrich the practical sagacity

of its subject. The education of the school, like all formative exercises, should not only increase the range of the student's acquaintance with facts, but should also affect his whole philosophical outlook on the one hand, and his practical control of affairs on the other. The educator does indeed believe that no item of sincere intellectual discipline shall be found lacking when the account of a man's moral and personal worth is cast up; but whatever the ultimate ends to which formal education is thus ancillary, the immediate task of the latter is intellectual development, not moral discipline nor practical training. "It seeks," an American college president has said, "the highest manhood through the sincerest scholarship." Every final gain along utilitarian or cultural lines must be won under the conditions imposed by its own special methods. If character cannot be developed through systematic training of the mind, and if formal education has no other independent aim, its claim to existence is no longer valid.

The second of these general topics is the utilitarian value of collegiate study and its place in an ideal scheme of education. To you I need not become an apologist for academic training, but in many quarters its purpose and worth are subjects of debate, the one misunderstood, the other decried. Why should you spend these years in scholarly retirement? Why study dead languages which you will forget, higher mathematics which you will never use, history which will not help you to an income, philosophy which is barren and contradictory speculation? These are the most precious years of a student's life, when the capacity for acquisition and adaptation is at its height. You have no moment to lose if you would attain success in your business or profession. The world to-day gives credit only for useful knowledge. Make every item of training and information count. See that each is related to a visible commercial return. The college is an archaic interlude between two serious pieces of business,—the general preparation of the public schools, and the special training which one's later occupation demands. Cut it out, therefore; pass directly from the high school to the business office and the technological institute.

Contrary to these arguments, I am convinced that within the limits of commercial affairs themselves such a liberal education as we are here considering possesses a value which is enhanced in proportion as one's control of men and affairs expands. If the charge of inutility be a serious one at all, it is most so in the lower and mechanical forms of occupation, and ceases to have weight wherever success depends upon ability to discern the complex currents of cause and effect in the world and a psychological insight into the motives and characters of men. Of what advantage are these studies to the business man? Where, I ask in return, is the business man who is man of business alone? It is a false and artificial abstraction which underlies such a conception. Hath not a business man eyes? Hath not a business man hands, organs, dimensions, senses, affections, passions? If you prick him does he not bleed? If you tickle him does he not laugh? If he is like you in the rest he will resemble you in profiting by the most liberal training which can be provided.

For it is its capacity to contribute to the deeper satisfaction which life is capable of affording that I conceive to be the chief claim which the years of college study have upon a place in our educational system. The student who seeks knowledge alone misses half the meaning of college life. His development comes indeed through study, but it should mean far more than a knowledge of phenomena and their laws—as much more as culture means more than information. It should have freed him from that prejudice which is the bane of ignorance and the penalty of specialism; it should have made him sensitive to intellectual sincerity and consistency; it should have opened to him, in these studies, the springs of perennial delight.

All these things may seem intangible and undefinable, but the change is none the less profound and enduring. Its outcome is an atmosphere, invisible in itself, through which the student views life and its expression. The information one gets at college is at best an unstable acquisition, and unless it be related in some special manner to one's subsequent professional activities the bulk of it dissolves swiftly away; but one may see it go and yet be sure that underlying this superficial attainment

and unaffected by its disappearance is a positive possession which endures because it has become part of one's own intellectual spirit. It is a capacity more justly to appraise the values of life, to reason more soundly about events and men, to behold the world in a clearer and more undistorted vision. To have won this is to have received a liberal education. It is not necessarily a generous education, one which has offered various and intense mental stimulation. It is an education whose result is chiefly seen in what has finely been called "a rectification of the unconscious personality."

It is the cultivation of these qualities which furnishes the criteria of the college's ideal desiderata; for what is needful is not an exhaustive knowledge of any group of facts, but such a general acquaintance with natural laws and human history as will make possible an intelligent appreciation of the thought and achievements of man.

The nature of the special studies which should compose a college course is subject to wide variation, depending upon the personal inclinations of the student; but it should embrace three general branches, no one of which, under our present conditions of civilization, can be omitted without seriously imperiling the student's right to be called a man of liberal education. These three subjects are literature, history, and science. The study of science in modern days is indispensable, not only for the fact that it takes us away from ourselves and enriches our mental life with a group of healthy, objective interests, but also—and perhaps even more importantly—because of the manifold ways in which scientific knowledge and its applications are brought into contact with our daily thought and intercourse. An acquaintance with the more general facts of natural science is imperative for the very com prehension of contemporary thought, much more for that appreciative interpretation of experience which we call culture.

By history I mean the full record of human development and accomplishment. I can conceive of no more lamentable educational misfortune than that a man's view of the world in which he lives should lack historical perspective. Without a sympathetic understanding of human evolution no political

form, no social usage, no psychological experience is rightly intelligible. By literature I mean the sum of man's reflection upon experience, including philosophy,—which the ancients called poetry,—as well as literature in the technical sense. Its message is more intimate and personal than that of history. It interprets the lives of our fellow men, and illuminates the processes of our own souls; for the appreciation of literature is the discovery in it of a revelation of our experience. The value of philosophical studies is identical with that of literature. The philosophy of any time or people is the reflection of its deepest intellectual and moral needs. To have seriously faced these problems, and to have attempted to put into intelligible forms one's final criticism of life, goes far toward giving the student a sound and logical mental habit.

The aim of college training may then be summed up in a single word—culture, an appreciative acquaintance with the permanent expression of human thought. Its characters are two, breadth of knowledge and catholicity of sympathy. The college seeks to extend the student's information in history, in literature, in science. Its graduate should be a well-informed man. He should possess a general acquaintance with the more important results of investigation and more significant expressions of emotion, so that he may be able to apprehend the meaning of new discoveries and achievements within the various domains of thought. It is as serious a lack for a college-trained man to be ignorant of fundamental truths of science, or important historical movements, or great literary expressions, as for the schoolboy to be unable to spell correctly or to give the meaning of the words of his mother tongue.

College training stands also for criticism. The student should be taught to discriminate between good and bad literary form, between valid and vicious methods of reasoning, and to appreciate the values of the things with which he is becoming acquainted. His standards of taste and judgment should be formed, as well as his knowledge rounded out. He should be able to read widely and to listen intelligently. The college, in short, seeks to develop that capacity for intellectual orientation and that sense of familiarity with the general drift of human

thought which prevents ill-formed and prejudiced opinion, which gives discernment and rationality of judgment, and which puts the man who possesses it at his ease in all cultivated society.

The aim of the university, likewise, may be stated in a word, —scholarship. Its characters are two: specialization and research. The object of the university, whether existing as a separate institution or as part of a comprehensive system including lower as well as higher types of discipline, is the training of a body of technical scholars in the methods of their several special sciences. It is incompatible with the idea for which the institution stands that those who are of its membership should scatter their energies over a variety of studies. Exhaustive knowledge is essentially of a limited field, and the prosecution of work according to university methods depends fundamentally upon specialization of interest and the concentration of activity upon a single branch of science. The restriction of activity by limits within which approximately exhaustive knowledge may be attained is not the end of university training, but the indispensable means by which is developed in each student the capacity for productive investigation.

Every university graduate should be a man so equipped with technical knowledge, so trained in special method, that within the limits of his chosen subject he shall be able to make independent contribution to the sum of human knowledge. Moreover, the certificate of his graduation should be in itself evidence of the efficiency of his training by exhibiting the actual accomplishment of one such piece of original investigation concerning a special topic.

The university as thus defined consists in America of a variety of institutions more or less technical in their character, among which the least specialized is the graduate school. The relation of this department to the system of college studies with which it is ordinarily connected has tended to obscure the distinctive character of university work in general. In many instances the work done in graduate courses is but a prolongation of collegiate training, assuming the point of view and depending upon the methods of that department of education.

This lack of demarcation is emphasized by the existence of an intermediate degree lying between those which respectively mark college and university graduation. The Master's degree does not signalize the conclusion of any process of training, nor the attainment of any new grade of activity on the part of the student. This is recognized in the majority of our institutions by the nature of the requirements imposed for its attainment. These demand commonly the addition of a certain amount of collegiate study, the writing of an essay and the lapse of a specified period of time after the conferring of the Bachelor's degree. It is, in short, a title of slight significance, and the situation would be clarified if it were done away with as a university degree.

The work of the graduate school is set off from that of other departments of the university, which we call professional schools, in virtue of the topics of study which it comprises, and not by reason of differences in their points of view or methods. The work of the graduate school, as literally as that of the schools of law and medicine, is to train a body of special experts. Their topics of study are to be differentiated chiefly in view of their relations to the affairs of practical life. Their function is not to afford training in the technical arts of medicine, law, engineering and the like. Its special aim is to produce men capable of scientific investigation, not those skilled in applying the results of such research to the solution of practical problems. In their development these two activities are indeed inseparable. Scientific knowledge is the sole condition which makes possible the rational control and use of material. The study of mechanics is concerned only with the determination of the laws of change in physical bodies, but the shape of every girder and thickness of every bolt, the proportion of every building and form of every projectile, are controlled by the principles which the analytic study of mechanical forces and laws has made known. Chemistry in its analysis has no concern with the dye-stuffs and drugs, the foods and explosives, which are compounded from the substances it studies; yet sanitary diets and curative prescriptions and beautiful fabrics could not possibly have reached their present development ex-

cept by virtue of the knowledge which pure chemistry afforded. Science and practice march hand in hand, but the study of the one group of facts is university, that of the other technological, training.

The great professional schools seek both ends. The physician, the advocate, the chemist, the engineer, are men whose activities embody the application not of rules but of principles to the work in hand. Their knowledge is not empirical, but rational and scientific. In so far, then, as special scholarly study is involved in his work, the professional student is engaged in university activities; but his standing must continue to be confused by the fact that his immediate interest lies not solely nor chiefly in forwarding the knowledge of men concerning his own special subject-matter, but in applying such knowledge to the practice of the industrial and technical arts. These schools are rightly part of the university system only in so far as they pursue the study of the pure sciences of mechanics, chemistry, physiology, jurisprudence and the like, and further research along these lines. There is no class of facts and no department of human investigation which may not properly be included within the range of university studies.

During the past quarter century the organization and administration of the professional schools in the leading institutions of America have manifested a steady progress toward the university point of view. It is shown in the increased range of scholarly attainments demanded of those who would enter upon the studies of these schools; it is shown in the prolongation of the period of study required for their final degrees; it is shown in the increasing emphasis which has been laid upon a knowledge of the scientific bases of all technical training; it is shown in the growing encouragement which is given to independent research. More and more extensively, therefore, is a wide range of information and a sound and disciplined judgment presupposed in those who take up the study of technical problems in each special science.

The affiliation of the university with the college is mental, not local or structural. The same freedom of choice should be maintained here as in passing from the preparatory school to

the college. The considerations upon which selection fitly turns have reference solely to the original force of the men who direct the various departments of study in different universities, to the adequacy of the equipment which is provided for research, and to the geographical relations of the institution to supplies of material for the investigations which are to be undertaken.

The conditions which ensure breadth and wholesomeness in college life become matters of indifference in the university; for in the latter it is not the variety of interests represented and the bringing together of many types of local culture which make for strength, but the singleness of enthusiasm for intellectual discovery which exists among a body of men pursuing common objects of investigation. The graduate schools of a university do not logically receive the generations which the college connected therewith brings forth from year to year. Local bonds have no proper value here, and every practicable facility should be provided which will enable the university to draw its constituents from the widest geographical range, and which will permit the graduating members of the college to scatter as freely as possible to institutions where the most adequate means is afforded for carrying on their several special lines of study.

University work is essentially of the class known technically as "residential." The deplorable practice exists in certain American institutions of granting the doctoral degree to those who have never been thus identified with their work. The requirements in such cases are commonly the passing of a set of examinations, the presentation of an essay, and the payment of a considerable fee. The work performed by this class of students is not done at other institutions of a similar character to that which grants the degree. There could ordinarily be no reason for such a transference of credits, and the degree would naturally be sought from the university at which the work was carried on. The offering of degrees for work done *in absentia* is an appeal to those who are compelled to carry on their studies privately and without the aid of that literary and experimental equipment which is afforded only by extensive libraries and laboratories, and which is indispensable to the successful pursuit of that work for which the university degree stands.

Almost all our universities add to the general condition that the candidate's work shall have been done at some recognized institution, the further requirement that a considerable portion of that work shall be pursued at the institution from which his university degree is to be received. The first of these conditions ensures the student's access to adequate material and equipment for the prosecution of his studies; the second secures that personal knowledge of his character as a student which in the conferring of this recognition of attainment—the highest which the educational system comprises—is of the first importance. I recall only three institutions of consideration where the condition of residence is not specified. In a series of fifty schools which grant the doctoral degree,—among which are to be found all the more prominent universities of the country,—twenty-three require at least one year of resident study, nineteen require two years, and five demand even a period of three years' residence for the attainment of the final certificate.

The work which a university student does is not necessarily carried on at a single institution. That work should indeed be conceived as an essential unity, but the pursuance of it may admit, or in virtue of the distribution of material may even require, residence at more than one center of learning in the course of its completion. In such a case the institution from which the final degree is received should be able to vouch for the character of the work as a whole, and wherever possible the complete course of study should be under its direct supervision. One application of this general principle is presented in the system of traveling scholarships, the incumbents of which are still in the most real sense members of the university which has thus honored them; and the custom of returning to that institution for their degrees, instead of presenting their credentials at the foreign universities where they have been temporarily in residence, is much to be commended.

The natural qualification of any student to enter upon university work is the possession of the Bachelor's degree. With a system of education presenting organic continuity no other criterion should be necessary. Of the fifty institutions already mentioned forty-seven require this certificate from candidates

proceeding to the doctorate, two require the Master's degree, and one only leaves the relation unspecified, the latter being an Eastern technical school. The status of the Master's degree, to which reference has already been made, is again indicated by the rarity with which it is made a required preliminary to the doctorate.

The work of the university student culminates in the doctoral thesis. Other criteria are distinctly and permanently of secondary value to the capacity of the student to give evidence of original constructive ability in the results of a special research undertaken and carried on by himself. The task which he is now called upon to perform is of a new and peculiar kind. Hitherto his observation of fact has been under guidance, now it becomes self-directed. Hitherto his criticism has been experimental and subject to correction, now it becomes effective and must be self-reliant. Hitherto his constructive and inventive abilities have been employed in the repetition of demonstrations as a formal discipline, now they are to be put to serious work which invites a merciless criticism. It is, therefore, not the range of his acquaintance with facts which is here of primary importance, though that must be sufficient to enable him to apprehend the value of existing contributions to his special field of research. It is not even the measure of his logical penetration in criticising the productions of other minds, though such sanity and acumen are essential to all productive work of high order. It is the possession of that scientific vision and inductive grasp which makes possible the accomplishment of the perfectly definite task which is set before him; namely, the successful prosecution of a problem in experimental or historical science.

From its very nature the subject of the doctoral thesis cannot well be prescribed by an external authority. It represents the direction of the student's own intellectual growth, and the theorems with which it is concerned must needs be of those problems with which he is brought face to face in his own thinking. So long as he goes on assimilating the thought of others without advancing beyond it, no such attitude toward the world of knowledge as the doctoral thesis presupposes can arise in his mind. Original scientific analysis or philosophical construction

appears only when limitation and inadequacy are immediately felt and an explicit and sustained attempt is made to supply the deficiency. It is evident that such problems must be set by the student himself, in the sense at least that he must feel the shock of discovery by an immediate realization of the actuality of their existence within his own horizon.

The prescription of topics for essays is eminently wise at all preceding stages of the student's career; for there the need is to ensure a sufficiently varied material for the application of those capacities for selective and discriminative thought which it is the aim of the educator to develop. But such an imposition would be disastrous in that piece of composition in which the student undertakes to show not only his mastery of method, but also the application of inventive skill and a disciplined imagination to the solution of an original problem in science or philosophy.

The outcome of the thesis work should be positive. Within the scope of the term, as here employed, falls destructive criticism, the so-called negative results of experimental science, such as are involved in the refutation of an historical error or the demonstration of the inapplicability of an assumed hypothesis in science. In both cases a positive advance in knowledge has been made by establishing true historical relations and closing false byways to vain exploration in the future. The thesis must show some bit of knowledge which previous to the work of the writer did not exist, and which owes its existence to his patience and penetration. No such bit of knowledge can rightly be called insignificant. Special and minute it may be in the highest degree; to the layman it may be unintelligible or of little practical importance, but somewhere in the general system of science it has its place,—a place which indeed in the largest sense may be of high significance for that very body of secure and practical knowledge upon which the conduct and enjoyment of ordinary life depend.

The doctoral thesis is therefore of a class of work which from its very nature should be known to other productive scholars. It springs out of a field of activity which, in all ordinary cases, is common to a group of workers, since upon the existence of a

body of literature concerning its general province the interest of the student in his special topic as a matter of course arises. The publication of such theses is both negatively and positively important; negatively, in that the same problems are likely to arise in the minds of others as well as in that of the writer when all are pursuing the same general ends, and the communication of each new contribution to knowledge obviates the misfortune of fruitlessly duplicated work; and positively, because every addition to the sum of special knowledge illuminates the pathway of the investigator, and thus furthers the progress of other research. The value of the alluring yet perilous goal of publicity as an incentive to the highest activity of which the candidate is capable needs no emphasis.

While pointing out the value of documentary evidence, both in relation to the entrance of the student upon university study and to his graduation from it, the fact must not be lost sight of that examinations possess a proper function in that sphere of training as well as in the college. It has been said that the topic of a doctoral thesis cannot well be too technical and specialized. It is nevertheless possible for the student to confine his attention to such a narrow range of related facts that, while the particular piece of work in question may have been carried through satisfactorily, his efficiency as an investigator, even in that special branch of science, is impaired through a failure to apprehend the interrelations of its phenomena with those of independent but closely allied fields of study.

This is not a matter of general culture, nor one for which the college can be relied on to provide. It is distinctly a question of scholarship, and concerns systematic acquaintance with a province of related facts all of which bear more or less directly upon the special phenomena which the student has selected as his own field of work. The thesis is evidence of the specialization of activity upon a definite problem; these examinations aim to prevent unhealthy narrowness of view and to ensure sanity of scholarship on the part of the student. Out of the fifty schools referred to above forty-four make the successful passing of examinations obligatory.

The method of these examinations is of interest. The stu-

dent has much practice in written work throughout his training, and in future years a large part of the activities which he manifests will find expression in the same form. In relation to such production, the mature scholar differs from the young student as much in possessing a serviceable knowledge of the sources of information concerning any given topic as in having an acquaintance with its general facts. But it is not sufficient that this knowledge should be docketed in reference books; it must be systematized and available, so that the student may be an intelligent exponent and debater under circumstances in which no leisure is afforded for consultation of authors or written preparation of his views. I am of the opinion that a valuable aspect of the scholar's preparation has been lost sight of in proportion as the method of training involved in oral discussion and examination is allowed to lapse. Sixteen universities of those already cited include an oral examination in their requirements for the doctor's degree, to which number a large addition should probably be made, since in twenty-six cases of the forty-four institutions which set examinations the character of the test is not specified.

For completing these examinations in many institutions a knowledge of one or more foreign languages is necessary. The bearing of this requirement is sometimes misunderstood. The point of view which it embodies is wholly distinct from that purpose which in the college commonly fosters a study of the classics and modern languages. To the undergraduate these disciplines are of value chiefly for the new range of stimulations which they afford in presenting to him other types of civilization and expression than his own, and for the resultant enlargement of his intellectual horizon, and the quickening of his sympathy with human experience at a multitude of novel points. For the university student, on the other hand, the enriching of character and deepening of enjoyment in life form no part of the significance which these linguistic attainments possess. They are purely instrumental to scholarship, and are important, nay, indispensable elements in his equipment, for the reason that without the knowledge of more than his own tongue the student will inevitably be shut out from sources of information concern-

ing his material, the lack of which must lay the results of his work, and even his method itself, open to grave suspicion. Of the fifty American universities above quoted twenty-nine require a knowledge of both French and German, seven require Latin in addition to the foregoing, one requires German only, and in the case of twelve institutions acquaintance with foreign languages is either not required or not specified.

Of the wholesomeness of this linguistic demand there can be no question. The work of each scientific scholar is becoming ever more intimately dependent upon the labors of all others as the nations draw into closer communication with one another, and we look for the swift approach of uniformity of opinion in regard to this requirement when no graduate of a university in good standing shall be without a reading knowledge of at least two modern languages in addition to his own tongue.

Some Thoughts on College Entrance Requirements

FRANCIS RAMALEY, BOULDER, COLO.

WHAT is college preparation? Some years ago the high school course actually prepared the student to take up his work in college; in other words, the college work was a continuation of that given in the high school. Latin, Greek and mathematics formed the main part of the course of study in both high school and college, and the students entering the higher institution without a thorough grounding in these subjects could find very little to do. At the present time the subjects of Latin, Greek and mathematics form only a very small part of the work done in the college or university. Aside from these branches, practically every subject taught there can be begun without previous training. A student of good ability might enter the university with but one year's high school preparation, stay four years, and complete satisfactorily the various courses which he might elect. Thus we see that the high school course no longer actually "prepares" for college. Many subjects may be begun in the college or university, since the elementary courses are actually given there.

Let us see if we can find the meaning of the preparatory course. Is it intended to fit the student for certain special branches, or is it merely to insure a trained mind? I believe that a study of entrance requirements in state universities at the present time will lead to an affirmative answer to the second part of our question. Thus we find that many of the more progressive universities no longer have rigid requirements for entrance, but simply ask that the applicant have a thorough four-year course in the secondary school.

What foreign languages should be required? Great stress was formerly laid on preparatiou in foreign languages. Now, however, these subjects are no longer considered so essential.

Students are permitted to choose among the various foreign languages, and carrying out the elective principle the student is allowed to present other subjects in place of part or all of the language. At the University of Michigan, for example, Greek and Latin are not required for entrance, and in fact only two years in foreign language is required. At the University of Wisconsin, for certain courses the student must present credits in Greek and Latin; but there are other courses open to those who have had only modern language, or even to those who have no language but English. At the University of Minnesota no foreign language of any kind is required for entrance. At many of the other state universities but two years' work in foreign language is required.

We may well ask why the student should be required to study foreign languages in the high school and then be required to continue the same in the university. The so-called "tool value" of languages, especially modern, is often exaggerated. It is true that a student who expects to become a professional man of science, as a chemist or botanist or physicist, should have a good reading knowledge of French and German and also know something of Greek and Latin. Still it is not necessary to require him to pursue these subjects in the high school. If he does not elect them there he will elect them in the university. The student who intends to become a teacher of language will prepare himself by the study of one or more foreign languages. The student who expects to teach history or philosophy or any other branch in the university will do the same.

But how many of our students actually look forward to such careers as we have suggested? The great majority of them will not pursue in college any subject for more than two years or perhaps, at the very outside, three years. In order to carry on this work there is little need for the study of any foreign language. However, a certain knowledge of Latin would surely be of very great value in any line of study.

Have we been following a wrong principle? It seems to the writer that we have been making a great mistake all along in our requirements for admission to the different courses in the universities. In order to enter the scientific course students

must present high school credits for about three years' work in science. When these students reach the university they are for the most part put into classes along with others who have had no high school training in these special branches. If they enter the more advanced courses they are not likely to be so well prepared as those who have had the elementary work in college. The high school courses in science are well adapted to the needs of students who do not pursue these subjects farther. They might well be required for entrance to the classical and philosophical courses in the university, but not to the scientific course. If the applicant for admission to the B. S. course has had "preparatory" work in science, well and good; but if he has not it is no matter. If the student wishes to make a specialty of modern languages in the university he may begin these subjects in the high school, but this is not necessary. The young man or woman with training in science should be welcomed to the language courses.

If, as is generally supposed, the function of the university is to give the student a liberal education, then what we should require for entrance to the scientific course would rather be subjects not directly related to science. The same principle holds good in regard to the classical course. Students enter this course with a large amount of preparation in Latin and Greek and frequently with no science and little work in the new humanities. Would it not be much more sensible to require science and history and modern language for entrance to the classical course, and reduce somewhat the requirements in the ancient languages?

It happens at the present time that students in the scientific course do have considerable training in languages and the new humanities, and so they receive a general all around education. The classical course, as now given in most colleges, is really the only one-sided course, for in that students have practically no training whatever in science. Their whole course is of such a nature that they are not likely to elect work in the sciences to make up for the meager entrance requirements in those lines.

What of the future? Just as the universities have been able to make their own courses of study largely elective, so they will

in time allow considerable election of high school studies by applicants for admission. The high school course can no longer be called a preparatory course in the sense that it is prerequisite to work in the university. Work in the university no longer fits on to the high school course in any definite way. The university offers rather a course of general culture, and in order that the student may pursue such a course intelligently he should have four years' training in the high school. But that this training should be of any specific kind is not necessary. There is every reason to believe that in the near future the universities will see that it is the amount and quality of high school training rather than the specific character of such training that is needed in their applicants.

Silence and Serenity

Silence and serenity
  Are precious words to me,
For they help make the atmosphere
  Of peace and charity.

And so I chant them as a nun
  Chants over her pet beads,
To bring the Holy Spirit near
  And lead to kindly deeds.

ELIZABETH PORTER GOULD.

What is Multiplication?

A. LATHAM BAKER, PH.D., BROOKLYN, N. Y.

ATTENTION has been called to this question by the recent appearance of Judd's Genetic Psychology for Teachers, in which is reproduced the old misapprehension that multiplication is a special phase of addition. The prominence of the writer and the unusual merit of the book compel attention to an error that otherwise might be passed over in silence as another instance of the conservatism of pedagogy and of the more than feline multiplicity of lives possessed by this ancient inaccuracy. Its reappearance in such authoritative form is unfortunate for those who still adhere to the ancient error, who thus are strengthened in their orthodoxy.

He says, "When we come to multiplication and division we have modifications of the process of grouping [addition and subtraction]. . . Division is therefore a special case of subtraction." "Division and multiplication thus come to be processes dealing with units of higher order" [produced by addition and subtraction].

These quotations show that the writer has confused the simple and universally applicable operation of addition with the far more complicated and, in its applicability, limited operation of multiplication.

It is curiously surprising that the acumen so conspicuous throughout the book did not discover that the definition breaks down the moment it is applied to fractions. Particularly noticeable is the failure when applied to stroke and vector multiplication, where no amount of addition of the original elements will produce the quotient.

Likewise in his definition of division he has confused the abstract operation of division with the concrete semi-mechanical operation of finding the quotient. To define division as a special case of subtraction because in the mechanico-mental

operation of getting the result we do perform subtractions is no more reasonable than to define division as a special phase of crank-turning because we can arrive at the result by turning the crank of a calculating machine. It should be carefully distinguished that division is a mental operation the result of which is arrived at, except in the case of simple and familiar quantities, by a series of partial divisions and subtractions, each part of the quotient being subtracted as soon as ascertained. But these subtractions are not division, nor have they properly anything to do with the division, being merely operations to clear away the *débris* for a new partial division. They have nothing to do with the division *per se*, being merely a house-cleaning process to prepare for a new partial division.

Addition is merely accumulative combination of elements, and is applicable not only to mathematical concepts but to concrete objects, fingers, pebbles, etc., and to this extent is not a purely mathematical operation; it is concrete as well as abstract, in that it can be applied to concrete objects.

Subtraction is the decumulative combination of elements, and is likewise applicable to concrete objects, within the limits of concreteness. When applied to abstract concepts, debt, direction, etc., its continued application results in a new number concept, the negative number.

These two operations are operations which do not change the original elements but merely adjoin them unchanged into a cumulative (or decumulative) result. So long as the elements are unchanged these are the only possible operations.

To arrive at an idea of multiplication we must ascertain the permissible operations performable upon number. To do this we must find out the properties of number. Primary number has only one property, its differentness from unity. This property can be used as a directory mandate for the possible operations. If we use the evolutory differentness from unity, the differentness which produces the number from unity, as the mandate we get multiplication, the doing to the operand (multiplicand) what was done to unity to produce the operator (multiplier). If we use the involutory differentness, the differentness which converts the number into unity, we get division, the doing

to the operand (dividend) what was done to the operator (divisor) to convert it into unity.

These are transformational operations; operations which transform the operand into an entirely new and different number. They are purely algebraic, being limited, unlike addition and subtraction, to operations upon discrete number.

A not entirely satisfactory illustration of the difference between the two operations of addition and multiplication is the putting of two canes together for addition; for multiplication we would be compelled, because the first was triangular, black, smooth and uniform in size, to transform the second cane, which was round, white, knotted, tapering and with a knob on the end, into a triangular, black, smooth, prismatic stick. It is transformed into an entirely new and distinct form, and its original features have disappeared.

So in numbers, addition and subtraction are merely adjunction without change of the original elements. Multiplication and division are destructive transformations, the destruction of one element and the production of an entirely new and different one, like the growth of a plant from the seed.

From primary number these are all the operations permissible until we produce by subtraction the new concept, negative numbers, introducing reversion; and by division (evolution) the additional concept, complex numbers, introducing mean reversion.

These definitions of the operations are general, holding for all branches of discrete mathematics, algebra, complex functions, quaternions.

Involution is merely that special case of multiplication in which the first operand and all operators are the same, working from unity to the result.

Evolution is that special case of division in which all the operators and the last operand are the same, working from the first operand toward unity.

Incidentally, as a corollary to this, comes up the similarly faulty definition of exponent, so persistent in the schoolroom, the number which shows how many times the base is taken as a factor. This is absurd, of course, when the exponent is a

fraction, and is apologized for by asking for an extension of the idea to cover fractions. Why not start right at the beginning, and define exponent as the number which shows how many equal multiplicative and divisive operations are to be performed upon the base? Whether in the case of fractional exponents we should speak of power or not, about which many make so much ado, is merely a question of definition; whether we define power as the result of equal integral multiplicative operations, or of equal operations, multiplicative or divisive. The question is largely one of convenience and convention, narrowness or breadth, and not one of right or wrong.

In the Piazza San Marco

Mosque-like and many-domed in the sky it shone,
The eyes of men to dazzle and amaze,
The great barbaric splendor, all ablaze
With rich mosaic, vari-colored stone,
And brazen steeds upspringing to the sun.
The triple pedestals their mastheads raise,
Where flowed the gonfalons in the golden days,
When Venice, Cyprus and Corea were one.
Look, mass is over,—shriven of their sins,
Forth-issuing from the scented darkness sad,
I look to see the fair Venetian girls,
Like Caliari's proud Saint Catharines,
Serene and tall, in splendid satins clad,
Their blond hair bound with loops of pendant pearls.

ISABEL HUNTER.

The Relation of Drawing to Other Subjects

HERMANN WARNER WILLIAMS, GRADUATE STUDENT MASSACHUSETTS NORMAL ART SCHOOL, BOSTON

SOME learned person has said that drawing is the art of representing objects by lines made with a point; delineation as distinguished from painting. However, although this definition may be as good as any so far as the word drawing in itself is concerned, when we come to study the topic we cannot but feel that it is not altogether adequate for a perfectly clear understanding of the word.

Consequently let us assume that drawing in this particular case means that study through which it is possible to produce works of art. In other words, the thing we are thinking about is that study in the course of which we shall be introduced to the elementary principles underlying all expressions of art. Or, to repeat, this study should contain within itself sufficient instruction and sufficient training so that a person following faithfully the prescribed course in it should at the end of that course have his mind opened to the possibilities of constructive drawing, decorative drawing, representative drawing, and be possessed of some idea of the beautiful. It is not expected that a person will become expert in these subjects, but simply that he will be able to see the possibilities of them. And the best way to name such a course is to call it a course in drawing, although drawing in reality is only one of many subjects taught in it. Consequently during this course of lessons the following subjects and many more would be taken up:—

Constructive drawing.
Patterns.
Architectural drawing.
Pictorial drawing.
Studies of the human figure.
Studies of the animal figure.
Composition.
Color.
Type forms.
Working drawings.
Familiar and beautiful objects.
Landscapes.

Studies of plant life.	Groups of fruit or vegetables.
Character posing.	Historic ornament.
Decorative drawing.	Creative efforts.
Design.	Picture study.

All this mass of material comes under the head of drawing, and hereafter whenever we speak of drawing we may mean any one of these subdivisions or all of them combined.

When we come to read our title again we meet the words, other subjects. Now what exactly is meant by other subjects? We can do away with any misunderstanding here by changing our title to read, The Relation of Drawing to Everything Else in the World except the Fine Arts; and by the fine arts, of course, we mean painting, sculpture and architecture. According to this understanding the title means the relation of drawing, proper, and also its subdivisions, to the other activities of the world at large, be they what they may, only excepting those subjects which by reason of their own nature are so closely associated with drawing as to be virtually one and the same thing.

Teachers of drawing are often asked, Why do we study drawing? What good does it do the child? It would seem that such questions are fast becoming obsolete; but at all events we will look the matter over and form an opinion for ourselves. The few simple drawings, or what not, which the children make are not by any means the sole end of the drawing lesson; they are only one indication of the power which the pupil has developed. The fact that a child can do certain sums in arithmetic does not mean that that is all he can do,—just those two or three examples; but it does mean that the child has developed a reasoning power up to that point; that he can handle a multitude of other problems. And the same explanation holds good in drawing. When a child can make a drawing like the one in plate No. 1, it does not mean that the sketch is to be framed and hung on the wall, necessarily, but that the child, besides having acquired the skill needed to make as good a drawing as this, has also been pushing his powers of observation to a higher pitch.

While this drawing is really not very beautiful, still a person

having even as much ability as here shown would find it of considerable use to him in many lines of work. For instance, if we investigate what the effect of a training in drawing is upon photography, we find that an operator with a little knowledge of values and composition will make prints of considerably more interest than an operator with no training in these subjects. Besides photography it would seem that even a very slight degree of skill would be of use to the milliner in combining colors and arranging textures. Also to the printer in spacing title pages and in handling type for almost any purpose. The merchant also finds a little artistic training of considerable value in dressing shop windows, and clerks are sometimes employed who do nothing else. It is of use also to the military commander in planning his battles, and to the surgeon in studying the body before making an operation. It is, besides this, useful in basketry, weaving, embroidery, dressmaking, household art, pottery, joinery, wood carving, and art metal work.

No. 1.
M. M., Hingham High Sch., Massachusetts.

In fact, it comes up in so many walks of life that it would be almost a waste of time to pursue this investigation any further. However, last but not least, it seems that a little elementary training in drawing must lead us to an appreciation of the beautiful a great deal more sincere than if we had no understanding of the matter at all; very much as a great many

ex-football men enjoy seeing a football game, even though they be far too old and too infirm to actually take part in the game themselves. While a little skill in drawing is unquestionably of considerable advantage to almost anybody, exercises in drawing have yet another virtue,—and this virtue is the advantages which arise from having certain faculties developed by this means. The faculties which are developed and strengthened thus are briefly those of observation, the power of mental imagery and manual dexterity.

Somebody has said that drawing "produces ideas and idea associations which would never originate otherwise, deepening and replenishing the mental life." Also that "it widens the range and power of emotional experience and comprehension." Somebody else has said that "the initiative, alertness, and fertility of resource which the American is nowadays credited with displaying, though partly a climatic, is chiefly an educational product." And it would seem that if these faculties are the result of education, drawing can very justly claim to be of great assistance in developing at least two of them; when a child is required to take very slight suggestions from nature or completely abstract terms, and to evolve a design out of them, there cannot be any better way of stimulating and encouraging his inventive and imitative powers.

If I remember rightly, at the time when Greek art was at its height the Greek drama was also in a most flourishing condition. It might be interesting to make a few comparisons between the plastic arts and the theatre of about 400 B. C. and the plastic arts and the theatre of the present day. The principal difference between the ancient tragedy and the modern is that the plot in the Greek drama was taken, with few exceptions, from the national mythology, and so was of necessity known to the spectators. Of course this is not so in the modern play. However, there is no real difference between the arrangement of the two theatres as far as the seats and the stage are concerned, except that the Greek theatre was larger in every way. Of course the Greek actors wore the mask and the cothurnus, and were fewer in number than in the modern presentations, but their entrances and exits and the literary part of the performance were about the same.

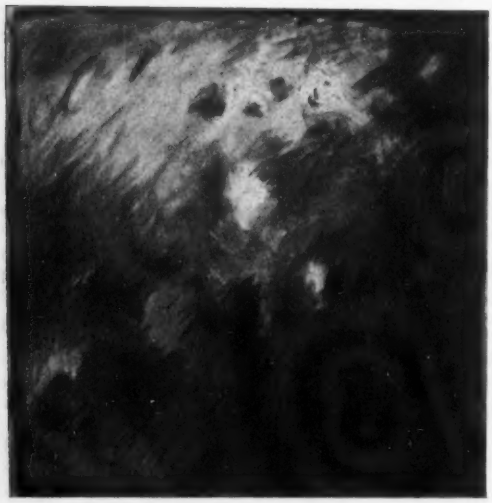
The main distinctions between the two exhibitions, it would seem, lie in their methods of presentation. This would include the differences between the stage setting and the different ways in which the two dramatists would make their story real to the spectator. Professor Blümner says the scenery indicated the place of the action, whether a square in front of a palace, or a street with private houses, or a forest. We must not think of the great variety of scenery known to our modern stage; no doubt, too, they were content with very simple execution, merely hinting at the scene required. Suppose we read just a few lines from the Medea of Euripides, and consider how a modern playwright might produce this scene and how Euripides actually did produce it:—

"But she, having started from her seat, flies, all on fire, tossing her hair and head on this side and that side, desirous of shaking off the chaplet; but the golden wreath firmly kept its hold; but the fire when she shook her hair blazed out with double fury, and she sinks upon the ground overcome by her sufferings, difficult for anyone except her father to recognize. For neither was the expression of her eyes clear nor her noble countenance, but the blood was dropping from the top of her head mixed with fire. But her flesh was dropping off her bones, as the tear from the pine tree, by the hidden fangs of the poison—a sight of horror. But all feared to touch the body, for we had her fate to warn us."

A novel, She, by Rider Haggard, had a scene in it something like this. A young and beautiful woman is changed by magic into an aged hag, and finally into a heap of ashes. If I have been correctly informed, this change actually takes place before the very eyes of the audience. Therefore it seems very likely that a modern dramatist would present the lines just quoted in very much the same way. The woman would appear to be actually burned before the spectators, the illusion being helped out by all the accessories of modern stage craft. On the other hand, Euripides merely had a messenger report that he had seen these events take place. One reason for this is, maybe, that the Greeks at this time were so trained, and were by nature such an artistic people, that they were perfectly able to image for themselves the scene suggested by the story of the

poet, and did not need any further help to see the picture than that furnished by the text of the play.

At the present time, however, the great mass of the people have not any such power of mental imagery, and so the scenes have to be acted out for them as near to life as possible. It would seem, nevertheless, that the work in drawing in the schools is beginning to be felt in this regard, considering the success of Everyman and other plays of that nature. This power of mental imagery is helpful not only in making pictures, but also in almost any kind of mental calculations, and in recalling details of events of importance to both professional and business men. It is the power of throwing up before the mind instantly the picture of a scene just as it happened.



No. 2.

Gen. Lew Wallace says of one of his characters that "besides being a master of design in many branches of art, he had an amazing faculty of describing the things he designed. That is saying, he had the mind's eye to see his conceptions precisely as they would appear in the finished state. So in talking his subjects always seemed before him for portraiture." In the actual application of these faculties to everyday life it would seem as if they would be of value to the railroad engineer, the marksman, clerks in handling money, the jeweler, watchmaker, gunsmith, bookbinder, etc., and to the playwright, author, musician, poet, etc.

Some one has said "beauty is more useful than the useful"; some one else has said that "beauty should be the end of life"; also that "beauty is the clearest manifestation of perfection." What-

ever this quality of beauty may be, it certainly is most desirable, and the question immediately arises as to how it can be obtained. Of course, there is only one way to learn anything now-a-days and that is to learn it at school. And how can a sense of beauty be cultivated any more quickly or easily than by drawing? Exercises of this kind open the mind to the beauties of form and color without doubt, and also to more abstract qualities. An appreciation of the beauty of balance must, it would seem go hand in hand with a keener sense of the difference between right and wrong. A study of proportion must, it would seem, help a person to decide between great and little acts, important and less important obligations and duties. It would seem that a properly censored course in drawing could not but be elevating in its effect, because the close study of nature which it involves and the sensitiveness to the beautiful which it inculcates must intensify the normal dislike of the ugly.

No. 3.

I regret that I have not been able to find a satisfactory definition of beauty. Emerson says that "If eyes were made for seeing, then beauty is its own excuse for being." But unfortunately just now we are not looking for excuses, but for a definition. So I have taken the liberty of making a statement for myself. It is this: That inanimate objects which are not unsightly are beautiful. For example, any lifeless object which is not distressing to look at ought to contain some element of beauty. Of course, I do not say that this definition is absolutely true; I do not know whether it is or not, but for the

experiment which I would like to try I think it will suffice. In plate No. 2 there are a few tones of color and value. The people to whom I have exhibited it have assured me that they did not experience any unpleasant sensations in looking at it. And so I have taken it for granted that this piece of canvas contains some element of beauty. Plate No. 3 is a piece of paper with some lines on it.

People have assured me, again, that this diagram was not absolutely repulsive in appearance, so I have inferred that it also

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No. 4. No. 5.

No. 6.

contains some element of beauty. In plate No. 4 we have another piece of paper with some more lines on it which, it seems to me, is also suggestive of something pleasant. And in plate No. 5 we have another somewhat similiar.

These are, of course, but four elements out of many thousands.

Now supposing we combine these elements, what do we get? We get plates Nos. 6 and 7.

Plates Nos. 2 and 3 represent one degree of beauty and plate No. 6 another.

Plates Nos. 4 and 5 represent one degree of beauty and plate No. 7 another.

"The mountain nymph, sweet liberty."

No. 7.

You have probably seen pictures based on either plates No. 2 or No. 3, and also pictures based upon the second idea in plate No. 6; but which is the more beautiful I leave for you to decide. This experiment may be interesting because it is sometimes said that "to most persons art is a small book written in a strange tongue." There are a great many degrees of beauty. But on the other hand, every person has a right to his own opinion of what is beautiful and what is still more to be admired.

This experiment, maybe, will also be of help in deciding how advanced a degree and what particular qualities of beauty can best be understood by varying classes. It has been said that in literature we do not begin with Wordsworth and Emerson, nor in music with the Ninth Symphony; why should we begin the study of plastic art with its most exalted forms?

If we study the various subjects on the school program with regard to their relations to each other, we find that they do not correlate with one another very well. If we look for any relation between geography and arithmetic we must look in vain. Neither do I see any connection between the study of Latin and the study of music; in fact, in my opinion, the other subjects taught at school stand for themselves, and do not help one another to any marked degree.

When, however, we come to investigate the correlation of drawing with these other subjects,—and by correlation we mean the degree in which drawing enters into and helps in the understanding of other subjects,—we find this: "Successful instruction in nature study requires the use of objects and illustrations. The just aim of the science lesson is to train the child's power

of observing the objects of nature and to use his eyes and hands in this work. Children should be encouraged to collect specimens and to report what they see in their visits to parks or other places of natural interest."

This is an extract from the report of a superintendent of schools. It seems to me that the correlation here is very close, because if the pupils are able to draw they can make sketches of the trees or flora which they have seen that will fix their habits much more firmly in their minds. Even drawing from the flat copy will help them to distinguish between the various kinds of flora and the other objects in nature study.

However, I should like to call your attention to the fact that while a considerable degree of the success attending the nature lesson is dependent upon the training which the children have had in drawing, I do not see that the progress in drawing will be particularly accelerated by the lessons in nature study.

The point which I want to make here is that there are a great many subjects in the school curriculum which are very much benefited by the study of drawing, and that a great many persons do not fully realize this, but think that the only results produced by the drawing lesson are the few simple sketches made during the drawing period.

Drawing is then a helpful correlative to all subjects requiring the ability to observe, the ability to retain visual images and manual dexterity. Consequently a training in drawing will be of assistance in nature study, manual training, physiology, reading, writing, spelling, arithmetic, geography, and history.

Drawing also correlates with almost every other subject so far as illustrating them with pictures is concerned. Besides this, skill in drawing is useful in arranging and decorating various school leaflets and exercises. In studying English sketches are also useful in describing the operations of daily life, such as ploughing, haying, lumbering, etc. In geography pictures or sketches made out-of-doors are helpful in leading the pupils to an understanding of what islands, peninsulas, promontories, etc., are. A common brook will often furnish all the examples necessary.

The problem which the educator has to solve is this: He has

in rough figures about nine hundred hours of school work a year, and he has about nine years of compulsory training. The raw material which comes into his hands is in the form of little unformed five-year-old children, and at the end of the nine-year course his grammar-school graduates, boys and girls of from thirteen to fourteen years of age, must be on a par with those of other states and countries.

The question, then, for him to decide is how he can best divide up this time so as to produce at the end of the course the highest results. Though there are many high schools throughout the country which are well patronized, still I have been told that the majority of children do not get beyond the grammar school. In fact, only one and one-half per cent of the children in the United States go through the high school.

No. 8.
J. M., Thos. N. Hart Sch., Boston.

If this is so it is probably due to the fact that compulsory education ends at about the age of fourteen years. So far as I have been able to ascertain by reading the schedule of study for several grammar schools, the general idea underlying them all has been to give to the pupils, as far as possible, a broad, non-technical education. This is only just, since it is in many cases all the education that a great many of the pupils will ever have. Of course we must grant that when the children come to graduate they ought unquestionably to be able to read, write and cipher. But these subjects are accomplished in their ele-

ments quite early in the grades, and the question immediately arises, How far are they to be pushed?

This is a matter which is outside of our province. Nevertheless I am very much interested in it from one point of view; that is, that of the drawing teacher. If the school program is to be kept evenly balanced and is not to advance any subject in it to the detriment of any other, does drawing hold in it its fair place. Is as much time devoted to this subject? Not as much as this subject deserves. We do not expect that, but as much time as will produce such results at the end of the term as will be equally good with those produced in the other subjects.

For example, the boys and girls of the ninth grade write compositions on various topics. Now how do these compositions compare with the best literature which we have extant? The following is part of a composition written by an average pupil in a ninth grade in one of the Boston schools:—

THE FIRST NEW ENGLAND THANKSGIVING.

"During October, 1621, the Pilgrims held their first Thanksgiving days at Plymouth. A plentiful harvest had been gathered, the Indians were friendly with them, and the loss of life was not so great as it had been. These and other reasons led them to praise the Giver, and days were appointed for that purpose.

"Four men were sent out into the woods to shoot wild fowl, and they returned in the evening staggering under their heavy burdens. The colonists did not have to buy their turkeys, ducks, and geese then, for they were in abundance around them. Meanwhile the busy housewives were polishing their tin and pewter dishes and making ready for the feasting."

Now suppose we read a short passage from Washington Irving:—

"We one day descried some shapeless object drifting at a distance. At sea everything that breaks the monotony of the surrounding expanse attracts attention. It proved to be the mast of a ship that must have been completely wrecked, for there were the remains of handkerchiefs by which some of the crew had fastened themselves to this spar to prevent their being washed off by the waves. There was no trace by which the name of the ship could be ascertained. The wreck had evi-

dently drifted about for many months; clusters of shellfish had fastened about it, and long sea-weeds flaunted at its sides. But where, thought I, is the crew? Their struggle has long been over; they have gone down amidst the roar of the tempest; their bones lie whitening among the caverns of the deep. Silence, oblivion, like the waves, have closed over them, and no one can tell the story of their end."

Having now formed a comparison of the relative merits of these two literary efforts, suppose we compare a ninth grade drawing with the work of a master.

Compare Plate No. 8. with Plate No. 6.

Is the child's power of expression by the one means equal to his power of expression by the other?

Education at the St. Louis Exposition

GEORGE E. GAY, BOSTON, MASS., DIRECTOR OF THE MASSACHUSETTS EDUCATIONAL EXHIBIT

THE Louisiana Purchase Exposition is the third great international exposition to be held in the United States, and is conceived and will be carried on in a form far above the highest vaults of the imagination at preceding expositions. To this result a large number of favoring circumstances will contribute. The Exposition commemorates an important epoch in the history of the country, deeply interesting to the nations of Europe as well as to both North and South America. Its location, almost in the geographical center of the Union, is more favorable to exhibitors and to attendants than either Philadelphia or Chicago. The money invested, fully forty million dollars, is greater than was ever invested in any exposition before. Last, but not least, its management has been and is in the hands of men who have won laurels in exposition work at Philadelphia, Chicago and Paris.

An exposition of such magnitude, inaugurated under such auspicious circumstances, and carried on with such skill, must be of great interest to teachers and students. Here will be collected and made accessible to all the best that man has achieved in his conquest of nature. The magic of the inventor, the genius of the artist and the skill of cunning workmen will unite in placing these triumphs where they can be easily studied and comprehended. Here will be the whole world in miniature. One will pass from Egypt to Jerusalem, from Jerusalem to the Philippines, from the Philippines to New Mexico, from New Mexico to Moscow, in a single day; and what he sees and hears in the several places will be not realistic, but real. Cairo will be a real Cairo; Jerusalem a real Jerusalem, and the language that greets his ears will be the language which the dwellers in Jerusalem heard on the great day of Pentecost.

History, as well as science and geography, will be made real to the student; for not only the present but the past as well

will be placed before his eyes, filled with living men and women. The cliff dwellers will re-enact the life which they lived before Columbus sailed across the Atlantic; the dwellers in farthest India will repeat the scenes which characterized the days of Buddha.

In the midst of this panorama of science, art, history, geography, and anthropology, the Exposition authorities have built a magnificent palace for education, and put in material form the apothem of the French government that "education and instruction are first because through them man enters into life."

In a little world like this, where every building and every object is educational in its purpose and tendency, what special objects shall be selected and placed by themselves to represent education itself? This is the question which was proposed to Mr. Howard J. Rogers, chief of the Department of Education, and which he has attempted to answer in his directions for the preparation of exhibits to be placed in his building. Here will be placed:—

(1) The school literature of all countries. This includes not alone the history and science of pedagogy as found in distinctly professional libraries, but also government and state reports, the history and present condition of school systems and of individual institutions; and text-books and original contributions made by professors and students to every department of human knowledge. To these will be added programs, rules and regulations, catalogues and other printed matter that will make the information on all educational subjects as complete as possible.

(2) Statistical charts, diagrams and tables. No part of the exhibit will be of more interest and value to visitors than the graphic charts. Through graphics the important facts in regard to population, the number and kinds of schools, the number of teachers, the number and age of pupils, the cost of instruction, and many other educational conditions, will be presented in a way so clear and striking that visitors can understand them at a glance.

(3) Models. Illustrative drawings, photographs and models will show the material equipment of educational institutions, buildings with their furniture and fittings, and playgrounds.

(4) Apparatus and appliances for instruction. Apparatus which illustrates a new method or shows the latest development or new application of an important educational principle will be exhibited in great variety. The commercial sections will display all kinds of geographical apparatus, laboratory fittings and materials and instruments of precision.

(5) Pupils' work—literary, scientific, mechanical and artistic. An exhibit of pupils' work may be made to represent the work of a school with considerable clearness and fidelity. Bound volumes of work arranged by years or grades, and illustrating fully the curriculum, are indispensable portions of an exhibit.

What will the teacher learn from the educational exhibits? First of all, he will learn the tremendous importance of education in the present life of the world. He will be impressed as never before with the amount of money, the number of men and the quality of brain and heart that are directing the great educational interests of the world. Seven acres of exhibits will proclaim them as no other possible means could proclaim them, and he will be proud of the fact that he belongs to the noble army of men who in every nation and in every clime are preparing youth for manhood and womanhood.

He will also learn that others are doing in other ways and often in better ways what he is doing in his way. One is tempted to believe that what he does with his whole heart is done as well as it can be done. An exposition of this kind is a great promoter of modesty. "Where are the heathen?" said one visitor to another, after studying the exhibits of the different nations at the Chicago exposition. "In my own county," was the response of the listener.

He who will may rise from his humility to better things. He may find the better way in which some other man does the work which he does. As he compares the exhibit of one nation with that of another, he will add to his own knowledge and his own power the knowledge which others have won and the strength of many men.

The chief results, however, from the study of educational exhibits are not immediate. The wiser knowledge, the new view, the change in attitude are indeed immediate and important. But the new knowledge is the fruitful seed of future wisdom, the new view is the true view, and the change in attitude is a change in direction that affects all future progress.

Outline Study of Silas Marner

MAUD E. KINGSLEY, EAST MACHIAS, ME.

A. Preparatory Work.

I. The Novel.

1. Definition of, varieties of.
2. Place of the novel in literature.
3. Value of the novel.
4. The evolution of the novel: the epic, the drama, the romance, the novel.
5. The rise and growth of the novel.
6. Robinson Crusoe and the Vicar of Wakefield.
7. The first English novelists.
8. Modern English fiction.
   (*a*) Thackeray, Dickens, Eliot.

B. First Reading of Silas Marner.

I. The Narrative.

1. Chapter headings.
   (*a*) Chapter i, The Wrecking of Marner's Life.
   (*b*) Chapter ii, The Growth of a Miser.
   (*c*) Chapter iii, The Cass Family.
   (*d*) Chapter iv, The Theft.

SUGGESTION.—Let pupils suggest a heading for each chapter and let class discuss carefully the appropriateness of each.

2. Outline of narrative by chapters. Example:—

(*a*) Chapter i: Favorite method of cloth making; weaving: personal appearance of weavers, superstitions connected with the craft, location of the industry, social position of the weavers; character of the old-time peasant; Silas Marner's trade; description of the cottage; reception of curious urchins; pen picture of Silas; opinion of the villagers concerning Silas (interpolation); Raveloe; Marner's long residence in Raveloe; his mode of life; physical infirmity; Jem Rodney's story; Mr. Macey's comments; Silas' medical skill; freedom from persecution; his earnings; story of Marner's early life: religion, character, reputation among his fellows; his friend, contrast between the two; chief topic of conversation; Marner's engagement; effect of Marner's infirmity upon Sarah and William; the deacon's illness; charge against Silas, the outcome; Marner's accusation, his departure.

II. Plan of the Story.

1. Introduction, Chapters i, ii, as far as "This is the history."

(*a*) Weaving.

NOTE.—A description of this industry as it arose in the early part of the nineteenth century, with mention of the superstitions clustering around the trade and its followers, and the consequent social position of the weavers as a class, lead up to the introduction of the hero of the tale and account in part for his eccentricities. The introduction is also valuable for the glimpse it gives of the times in which the action of the story is laid.

(*b*) Marner's early history.

2. Body of the story; divided into two parts.

(*a*) Chapters ii–xvi.

(*b*) Sixteen years after.

3. Conclusion.

C. Second Reading.

I. Place of the Action of the Story.

1. Description of.

II. Time of the Action of the Story.

III. Characters of the Novel.

1. Characters in order of their appearance; identification of each.

2. Classification of characters.

(*a*) Six chief characters.

(*b*) Characters directly concerned in the plot development.

(*c*) Characters useless to plot development.

3. Character sketches.

4. Character revealing episodes. (State the significance of each.) The brown pot, scene in the Red House parlor, the selling of Wildfire, Marner's meeting with Jem, Godfrey and the Squire, the yellow gown, Nancy and Miss Gunn, Godfrey and the dead woman, Nancy's reception of Godfrey's confession.

NOTE.—The characteristics of the actors in this story are brought out by conversation rather than by action.

5. Delineative pictures.

IV. Three Aspects of the Story.
1. Story of Silas.
(*a*) Early life.
(*b*) Four great changes in his life.
1. From useful member of the little church to the recluse of Raveloe. Change effected by what means?
2. From recluse to miser.
3. From miser to man with no interest whatever in life.
(*a*) Change effected by what means.
(*b*) Characterization of this change. ("Formerly . . . broken," ix.)
4. From heart-broken man to useful member of society.
(*c*) Characters directly or indirectly concerned in these changes.
2. Story of Godfrey Cass: How connected with Marner story?
3. Story of Eppie: How connected with Cass and Marner stories?
V. Significant Allusions of the Text.
VI. Manners and Customs of Rural England.
1. Daily life: Industries, methods of travel, dress, amusements, inns, education, classes of society.
2. Miscellaneous: Latchstring, food, horn lanterns, manners and conversation of the people, etc.
3. Old proverbs, sayings, and superstitions.

D. Third Reading.
I. Construction of the Novel.
1. Fundamental thought: Found in the title-verse (learn). The same sentiment is repeated in Chapter xiv ("In old days . . . child's").
2. The plot: The production of the various changes in Marner's character.
(*a*) Chief agencies concerned in the plot development: The loss of the gold; the finding of the child.

3. Underplot: Godfrey's secret marriage.
   (*a*) Incidents developing underplot: Dunstan's journey; the robbery; the finding of Eppie; draining the stone pit.

NOTE.—The scene in the Red House parlor and the finding of the dead woman connect the plot and the underplot.

4. Problem discussed in the story: The influence of individuals upon one another.

II. Literary Analysis of Silas Marner.
   1. Excellences of style.
      (*a*) Great strength in the delineation of character.
      (*b*) Life of middle class English folk faultlessly portrayed.
      (*c*) Plot simple, and field of action narrow, yet the story is of intense interest.
   2. Chief fault in literary style: a tendency to moralize.
   3. Details entering into the construction of the story.
      (*a*) Dramatic incidents.
      (*b*) Expressive similes.
      (*c*) Unfamiliar and peculiarly English words and phrases.
      (*d*) Bits of noteworthy description: Marner and his loom, the tea-table at Red House, Lantern Yard sixteen years after, Silas amid the gathering at the Rainbow, Aaron singing carols, Raveloe church on Christmas day, the procession marches into the White Parlor, Silas' first glimpse of the child, the bridal procession.
      (*e*) Touches revealing the author's subtle humor: Laying up a stock of linen, Marner's idea of the Rainbow, views on pronunciation, story of the glazier's wife, Dolly's opinion of men, Uncle Kimble at cards, description of Mrs. Kimble, etc.
      (*f*) Didactic interpolations.

E. Supplementary Work.
   I. George Eliot.
      1. Name by birth, by choice, by marriage.

2. Significant facts in her career.
3. Her position among novelists.
4. Her best known novels.

NOTE.—At the bottom of every one of her stories there is a problem of the conscience or the intellect. Here the problem is of the former class.

II. Theme Subjects.

1. The Novel: Its evolution.
2. Representative Writers of the Victorian Era.
3. Dolly Winthrop, a Character-Sketch.
4. The Glorious Wartime.
5. Important Historical Events of George Eliot's Era.
6. Weaving *vs.* Farming.
7. Silas Marner's Early Life.
8. A Glance through the Window of the Stone Cottage.
9. A Day in Raveloe or Christmas in Raveloe.
10. Dunstan's Story.
11. Lessons Learned from Silas Marner.
12. The Stone Cottage: Two Aspects.
13. An Evening at Rainbow Inn.
14. Aaron.
15. The Problem and Moral of the Novel.

Individual Work in Composition Writing

MARGARET ALTON, TROY, N. Y.

THERE are probably few subjects more difficult to teach successfully than the composition part of first-year English in the high school. Girls and boys come to this work with practically no power of original thought, with small conception of why we should divide our thought expression into paragraphs and sentences, with no understanding of why we do not say everything in exactly the same way, and, above all, with the vaguest idea possible of why they are to study the subject at all. To do away with this apathetic mental condition, to rouse the mind to activity is not easy, but must it not be done if the work is to be of value?

How is this to be done? In other words, how are we to succeed in teaching English composition? Commonly our practice would seem to say: Give out a subject for an essay, limiting the number of words; look over the work handed in, marking every error; require the first draft to be corrected; if it is not right this time, cause it to be rewritten again. But we must agree, those of us who follow this practice, that poor, careless, thoughtless use of pencil and paper results,—we are requiring our students to waste time and material.

More and more, in my own experience, I am compelled to look at classes not as a whole, but as made up of individuals,—each with peculiar gifts and peculiar problems to be solved. And I believe that we shall succeed in making our first-year students thinkers and writers of clear, interesting sentences and paragraphs in so far as we know our girls and boys individually,—know their failings, know their excellencies. We do not find these out, usually, because we try to make every single person say exactly the same thing on exactly the same

subject, and then we ask that every error made be corrected at once.

However, the "discovery" method is easy and pleasant and satisfactory. An essay or two at the beginning of the term, written, under no restrictions or limitations, on a subject chosen at will from a full list of well-considered subjects, will be of great value to the teacher. How? Each student will choose something that he is interested in; he will write himself into his essay,—his way of thinking, his limitations, his understanding of words, his use of sentences, etc.; every common deficiency, every excellence, will appear. When these pages are read it is as if a mirror were held up before the minds of this new class; one may read clearly what is there, and may discover what needs to be put there. During the reading, notes like the following, placed under the proper student's name in a note book, will be of the greatest value: A writes fluently, expresses himself often with too many words, avoids commas and even periods at times in his effort to make words keep pace with thoughts; B uses fair punctuation, never misses a period, and seems to understand or feel where a sentence naturally ends—his sentences, however, are simple and monotonous, the value of connectives being almost an unknown quantity; C's sentences are varied in form and pleasant to read,—his thoughts seem to come slowly or else he is afraid to express himself. And so on throughout the class. The note book forms the basis for further work and judgment.

After this first attempt at an essay the object of all writing must be, it seems to me, to focus all effort on one excellence and one error at a time, until the student himself begins to examine his own work critically and to know just what he must guard against. Very short themes are necessary at first. Time must be spent in thought and in careful scanning of expression, not in multiplying words. If the writing is all done in the class-room, the teacher can, by passing from desk to desk, induce this careful expression by calling personal attention to such points as transition from clause to clause or from sentence to sentence, the value of a long sentence as compared with that of several shorter ones, the use

of commas, etc. The whole object of the work in the first year will be to open the eyes of the boys and girls, first to their weakness, and second to the way to make strength come through weakness.

There are many ways of making this awakening a pleasure. Perhaps the class is reading Irving's Sketch Book. A student, not being satisfied with some sentence in his paragraph, asks the teacher for a suggestion. Knowing well where Irving is particularly good and simple in his sentence structure, the teacher may direct the student to a certain paragraph where he will find a variety of forms from which one may be selected. This is particularly helpful when one is working for easy transition or for a list of clause positions. After having been directed in this way and having found just what he wants, the student falls naturally into that best of habits in English study,—the looking to our good writers for guidance.

One will readily understand that this individual critical work will be aided and strengthened by class exercises in unity, variety, emphasis and transition. Anything that will strengthen the power of recognizing what is good, and making companions of several good things in order to choose the best, is valuable work.

One other suggestion may be made here. The reading aloud to one's self of what one has written helps greatly in gaining a critical mind. The voice seems to bring out little deficiencies that would otherwise escape us. Shall we allow this in class time? Certainly, if the class is in earnest. One who is trying to advance will be very careful of how he hinders others, and if he uses his voice while others are working, he will speak softly; the others, knowing what he is doing, will not be interrupted in the least. Only get students working for and interested in their own advancement, and silence or speech in class will regulate itself.

Editorial

THE Great West has been many times written about by Eastern people who have visited it. And much that lies beyond the Mississippi is still an unknown West to many who write. A month on the Pacific Coast, among teachers and in schools, will reveal a good many interesting facts; interesting in part, because surprising, and not less because of their significance.

Primarily, this section has had a generous constitutional and statutory recognition of free, superior and public schooling put into her several systems. As systems there are few better specimens of school legislation than may be found upon the Pacific Coast. Their houses are superior in both construction and appearance. Many of these have ample and choice equipments. Two normal schools visited are exceptional in this latter respect, among American normal schools. One state association has been attended by the writer, having 1,500 members present. Many—a surprisingly large per cent—of the teachers throughout the section, are college graduates. A larger proportion yet have had professional training. They constitute here a picked class. In the training of one corps of nearly two hundred teachers, thirty states were represented, and twice as many institutions. They are a vigorous body, alert, progressive, far better acquainted with what is going on in the older East than is the East with them and their work. In many respects one of the best equipped normal schools I know is a thousand miles west of the Mississippi. There is a sensible training, an excellent course, and a well-prepared body of young men and women.

Washington has an admirable state system, one that provides in a sensible way for all schools, but particularly for the weaker ones. Some of the older states might well profit by her example. Under the influence of this encouragement, high schools are rapidly springing up in all of the smaller cities and towns, and are being extended and equipped where they have before existed. Laboratories and libraries are growing. There is coming to be a closer articulation with the colleges and universities. These have given secondary education a sensible encouragement. Washington has now more than thirty high schools affiliated with its state university.

There is no need to write of education on the far Western coast in any apologetic terms. The interests of these states are identical with those of the older sections in all important respects. They are work-

ing at the same social and civic problems, and the public has not a variable faith in the wholesome influence of a sound and generous schooling.

THE life of the late Herbert Spencer, whose passing has been one of the world's distinct losses in the past month, is full of lessons for those engaged in any earnest work. His achievements illustrate the magnificent possibilities of a purely intellectual career. Mr. Spencer blocked out his life-work consciously and deliberately from the beginning, and held himself to the self-appointed task until he had made a record as one of the most, if not the most commanding intellect of his age. And what an age it was! How full of intellectual giants! The names of Gladstone, Kingsley, the Arnolds, Tennyson, Darwin, Huxley, the Brownings, Dickens, Thackeray, Ruskin, Carlyle, Macaulay, John Stuart Mill, and of Victoria herself, spring to mind as among the transcendently bright lights of the Victorian Age; all stars of the first magnitude, making this the most splendid age in the world's history. Herbert Spencer wrought originally, in his own field. His system of synthetic philosophy is the most fully rounded and strictly logical ever put forth by any thinker. His contributions to the science of government and the philosophy of society and of nature are of immense consequence to humanity. And yet he never had a university training. He was not directly indebted to the schoolmaster. His method was not academic. Possibly he would have been even greater had he not in a sense despised the things that are sometimes counted the indispensable conditions of true scholastic greatness. But his career furnishes one more illustration of the truth that a man is worth more than a system, a free spirit working out its destiny in conscious mastery and royal supremacy over all material conditions and environments—this is the greatest spectacle furnished by the continuous drama of history. The thought has many applications. In the school the teacher's individuality is of more consequence than any particular qualifications or prescribed preparations. The personal equation is far above the mere educational theory or program. Mr. Spencer was a long time in winning recognition. Publishers refused to take the risk of publishing his writings, and he spent large private sums in issuing the results of his laborious investigations. Like all original workers, he aroused many antagonisms. Doubtless his theories are more or less pregnable. But after all allowances have been made, his name and work will remain inseparably associated with a significant evolution of human thought which has made distinctly for a better understanding of man's presence on earth and his ultimate destiny.

ONE of the best manifestations of the spirit of the "new education" is the marked extension of the sphere of influence of the schoolhouse, in both city and country. Open all the time and useful to all classes of citizens is coming to be the popularly accepted ideal for the school building. Its use for the class-room instruction of the young will probably remain its first and principal one; but when the day's recitations are over why should it not become the center of the social, intellectual and civic life of the neighborhood?

There are still a few people, especially in the smaller country towns, who cannot get used to this new idea and who contend that the town officers have no right to open the building for any purpose save class instruction. A favorite objection of such people is that if permission is given at all it must be given to every applicant, no matter what the character or purpose of the proposed gathering. It is sufficient to reply that the matter can be safely left in the care of an intelligent committee, who can exercise the same discretion that every man exercises in relation to the guests whom he admits into his own house. Because he admits his neighbor or his friend he is not under obligation to admit a burglar or a tramp. The citizens, having paid for the school building, surely have the right to say how it shall be used. We think the time has gone by when any earnest body of responsible people could not easily get permission, by vote of their fellow-citizens in open town meeting, to use the schoolhouse for such purposes as those usually had in view by the school associations which are so rapidly (and happily) multiplying in various parts of the country. These associations for the cultivation of a true civic spirit, the fostering of correct educational ideas, the development of intelligence and a pure and helpful social life, are proving of untold benefit to our country. As they still farther multiply we look to see them federated for mutual growth and helpfulness. They are at once a cause and a symptom of the new educational consciousness of our people.

THE real test of a teacher's ability is found in the progress of the dull pupils. Yet few investigating parents or committees are allowed to know much about this even where there is anything to be known, and in a large number of cases so little special and intelligent work is done with the dullards that there is nothing to be shown to an interested visitor. On all show occasions only the brightest pupils are brought forward and the deficiencies in the teaching are discreetly smoothed over. Where a pupil is bright and well qualified in one study and backward in another, he is too often allowed to show off in

the line of his strength and to become more confirmed in the weakness of his deficiencies. Probably there are few educated people who cannot look back and see in their own experience errors that were tolerated in their early educational years that might easily have been eradicated, but which, being tolerated, have handicapped them and lowered the average of their culture all through life. Among grammar and high school, and even college graduates, there are mathematical cripples, linguistic blunderers, ears deaf to all harmonies, voices incapable of anything but discord, hands unable to draw a straight line from one point to another, imaginations wholly dormant, reasoning faculties absolutely deficient in all logical acumen. These inabilities combined in one individual would, of course, make him an idiot. But singly they are all too common. There is a touch of idiocy in very many presumably well educated people which might easily have been eradicated by thoughtful faithfulness on the part of earnest teachers and parents. It is hard to concentrate effort in the class-room on the line of greatest resistance. It is pleasanter to push ahead with the bright minds who least need our care and attention. It is far more gratifying to our vanity to show off at examination and exhibition time the ninety or one hundred per cent pupils. But there is really a far greater honor, a much profounder satisfaction and more permanent reward for the thoughtful and conscientious teacher who succeeds in bringing up a fifty per cent boy to a seventy-five or eighty per cent average. And the best school is the one whose graduates display in after life the evidences of a well-balanced, all-round culture.

Foreign Notes

CONTRAST BETWEEN GERMAN AND FRENCH SECONDARY SCHOOLS.

The October number of EDUCATION presented a brief epitome of an article by a French *savant*, M. Da Costa, on the historic development of German pedagogy. In this article, which is introductory to a detailed study of his subject, the author maintains that the animating principle of German national education is an exalted patriotism. This principle explains, in his opinion, the recent movement away from idealism and toward utilitarianism; a movement which culminated in the famous conferences of 1890 and 1900, and the resulting modifications of the secondary programs, that is, the programs of the gymnasia and the real gymnasia.

In a subsequent article M. Da Costa confirms his position by citing the corresponding views of well-known German professors. Thus, according to Professor Rein, "world culture" is something much too vast for the ordinary comprehension. It is only when the pupil is made to enter into the current of national life that his mind is properly nourished. For this reason "the analysis of the circle of German thought affords the only standard applicable to the national education." The study of literature, for example, "has no significance unless it is closely related to the history of the national literature." In the same spirit Dr. Jager, director of the gymnasium, Frederick William, at Cologne, says, "The teacher should have a spirit so completely patriotic, so entirely national, that he is not even conscious of the fact." For the most part also, according to M. Da Costa, this intense national feeling centers around the events of 1813 and of 1870, so that it excites a military fervor in the rising generation. In common with Mr. Sadler, who has also made a profound study of the German national education, M. Da Costa notes its wonderful adaptation to the work of unifying the entire body of the educated classes in the country.

In this respect the German secondary system has an effect exactly opposite to that of the French secondary system. The latter is a disintegrating rather than a consolidating influence. The passage in which these distinctive tendencies are set forth may well be quoted here in full, as it throws light on the two most highly organized systems of national training that have developed in the modern world. "Viewed from the practical standpoint," says M. Da Costa, "the chief characteristic of German education is seen to be its admirable adaptation to

the masses. Everything about it, even the slightest detail of its material organization, discloses a remarkable spirit of equality, a constant care for the formation, not of individual units, but of collective bodies armed for practical life. Strange as it may seem, the German school (reference is here made to the secondary school) is a model of democratic organization in the best sense of the word. Between professors and pupils, and between the pupils themselves, there reigns an admirable spirit of unity, of solidarity; in this respect it must be recognized that the German school realizes fully the ideal aim of a school, namely, that of offering a natural passage, a gradual progress from the narrow collectivism of the family, to the larger collectivism of the state. In respect to the domain of the school, and possibly also in respect to other fields of action, we are, as compared with the Germans, veritable aristocrats. We form *elite* classes to the detriment of the masses, and many of our scholastic institutions are specially adapted to accentuate intellectual differences, to create divisions, and thus to favor a mental disposition which does not promote social unity; or, to put it in another form, in our country the school often fosters, side by side with economic conflicts, intellectual and moral conflicts which are dangerous, if not to the order, at least to the harmony of society. It is altogether different with the German school; this institution, without passing beyond its own sphere, seeks to realize as fully as possible the unity, the solidarity which should eventually extend to all the members of the state. For this purpose it employs a successful method, which consists in raising by the same effort all the minds of one class to the highest average possible. Take any German class whatever, you will find there without doubt some scholars particularly talented and some incapable; but nevertheless you will never observe there the sharp distinction which is made between the famous head and the not less famous tail of a French class. It will often be found that the best scholars of the German class are inferior to the best of a French class, but on the other hand, as a rule, the general average of the former will be higher than that of the latter. I have many times made this observation to a German professor as we passed out of the classroom, and almost invariably the answer has been, 'We do not wish to form an *elite*.' Such an effort in a gymnasium would be wrong from a moral standpoint, because it attracts toward a small number, and by a sort of unjust privilege, the interest of the professor, which is due to the whole class; but more than this it would be even worse for the state, which, in order to sustain itself in the competition with other nations, must have the united efforts of all those who are educated. Now in this competition victory is won not by numbers alone, nor by intelligence alone, but by the judicious combination of both."

"The management of a German class," says M. Da Costa farther, "is always strictly subordinated to this principle. Hence, nearly always oral exercises or recitations have preference over written. Now one of the principal advantages of the oral exercise is that it enables the whole class to participate in a common work; for the same reason this class exercise ought to be of average difficulty, and directed rather to the development of the qualities of promptness, decision, and the practical utilization of materials within the mastery of all the pupils upon the simple condition of industry and effort than to the qualities of originality and personal reflection, which are better cultivated by the written exercise."

This view of the oral class exercise as a means of the participation of the whole class in the efforts of each member has been repeatedly emphasized by Dr. Harris, and is generally approved by American teachers. It is interesting to find it confirmed by an acute student of foreign school systems and methods. The study of German pedagogy from which the above citations are made[1] well deserves the attention of all persons interested in this field of inquiry, and may with profit be read in connection with Dr. Sadler's discussion of the "Unrest in Secondary Education in Germany and Elsewhere,"[2] which has many points in common with the study here considered.

NOTES.

The Superior Normal School (École Normale Supérieure) at Paris has been reunited to the University of Paris by a ministerial decree, which does not go into full effect until November 1, 1904. By this measure this famous institution is invested nominally with the full university rank which it has always held by its actual work.

The total number of students matriculated at London University the present year is 2,901 as against 1,917 in 1900. Owing to the modern character of the University there is noticeable a tendency among the graduates of Oxford and Cambridge to read for a London degree.

A. T. S.

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1. La Culture nationale dans l'enseignement secondaire en Allemagne, by M. L. Costa. Revue Bleue, July 18 and 25 and August 1, 1903.

2. Published in Vol. IX of the special reports issued by the Division of Special Inquiries and Reports, Board of Education, England.

Book Notices

NOTE.—The number of books now published monthly is so large that we shall hereafter adopt the plan of promptly acknowledging by title, author, publisher and price, all books sent us for review; and later, as space is available, give more extended notice to such as seem most likely to be of interest and value to our readers.—PUBLISHERS EDUCATION.

Hazen's Elementary History of the United States, published by The Morse Company, 31 Union Square, New York City, mailing price, sixty cents, is a simple, complete story of our country, adapted for study and reading. Biography and history are so woven together that each helps the other to instruct and interest the children and to bring out the important events on which the life, growth and prosperity of our nation depended.

The plan is new and striking. Each topic is treated by itself as far as possible, which gives a complete view of each period of our history. A view of the world in the fifteenth century prepares the way for the "First Period of Discoveries and Explorations," which covers the stories of Columbus, Cabot, Hudson, and others. Then follows the "First Period of Settlements," in which the stories of the various colonies are pleasantly told, the life, modes of travel, customs, and habits are made prominent, as well as the form and development of our Government, the prominence of English settlements explained.

The different parts are so connected that they naturally follow one another. Thus each period of discovery and exploration leads to settlements. The story of the colonies prepares the way for the Revolution. The story of slavery leads up to secession, etc.

In order to do away with excessive memoriter work and at the same time to give a clear, complete, and lasting knowledge of our country to the pupils, an outline at the top of each page forms a skeleton of what the page contains.

There are nearly three hundred beautiful and instructive illustrations, all original and prepared especially for this book.

A new and striking feature is the full pages of flags showing in colors our earlier colonial flags, with the development of "Old Glory" and our naval flags.

The publishers offer this history to the educational public as a great advance in methods of instruction, and believe that the plan and its execution will meet the approval of our most advanced educators.

Novello Music Course: Graded Sight Singing Melodies for Blackboard Use. Primer, First Reader, Second Reader and Third Reader. By Francis E. Howard. Teachers and pupils who use the "Novello Music Readers" are to be congratulated. We do not know of another collection containing so large a number of beautiful songs for children. The Readers are remarkable for the great number of excellent composers represented, for the bright and attractive character of the music, and for the skill which the author has shown in keeping the two and three part songs within the easy compass of young voices. He evidently believes in giving to children music with inspiring melodies, and when these are set to such rich harmony as is found in most of the numbers, their growth and interest in music is assured. No school board placing the Novello Course in the hands of competent teachers can fail to have the satisfaction of seeing the pupils grow in their love for good songs and in their power to inter-

pret them. We hope that Mr. Howard will make a collection of longer selections for the highest grammar grade or high schools. The choruses should be fairly easy, and not heavy, but such as he thinks suitable for young voices. One half of the book should be arranged for unchanged voices and the other half written with a bass clef. A series of charts for the three Readers, illustrating each new rhythmic and harmonic element contained in them, would be a great aid to the average grade teacher. New York: Novello, Ewer & Co.

Money, Banking and Finance. By Albert S. Bolles, Ph.D., LL.D. Dr. Bolles has performed a work so long needed and so acutely desired that the wonder is that it has not ere this been put forth. His book is the pioneer of its kind. The author states that it is designed especially for three classes of readers,—those that intend to devote themselves to the business of banking, those who are thus engaged, and those who are studying the history and theories of banking. A careful reading of the book demonstrates that one other class may well be included in this category, to wit, those who have anything to do with banks, either as depositors, borrowers, or lenders. The information is so extensive, so practical, so substantial, that everyone, be he banker, broker, business man, or professional, must needs for the sake of the knowledge the book contains and for the protection the book proffers read and study the book. Dr. Bolles' chapter-headings will disclose the subjects treated,—classification of banks, utility of banks, how a bank is organized, shareholders, bank circulation, deposits and depositors, loans, negotiable paper, duties of the various officers of a bank, how the reserve is kept, creation and utility of savings banks, depositors, and the law relating to the payment of deposits, loans, trust companies, private banking, bank finance, and railway finance. These are some of the topics considered in the book, which is a veritable storehouse of information regarding banks and their methods and uses. For commercial schools and high schools having commercial departments this work will be of inestimable value, while for the officers of banks and stockholders thereof it is a handbook of unquestioned authority. The business man will find it a valuable aid, and the professional man will save himself many errors and much confusion by owning and relying upon this most serviceable work. We give it our most cordial endorsement. American Book Company.

Short History of Mexico. By Arthur Howard Noll. This is a new edition of a little book that has had a cordial response from the reading public. The author pays particular attention to the efforts made throughout the nineteenth century toward the establishment of a constitutional government in Mexico. It is an authoritative work on the subject, and is sufficiently condensed to encourage the reader to read carefully the whole volume. A. C. McClurg & Co. Price, 75 cents net.

Greek Lessons. By Frederick Stillman Morrison and Thomas Dwight Goodell. This is for beginners in Greek, and is designed to guide them to a knowledge of the language through the grammar, the authors believing that the use of the grammar is indispensable from the very first lesson in Greek. The exercises are carefully graded, and specially prepare the student for taking up the study of the Anabasis with a good working knowledge of the grammar. The work has many excellencies which will commend it to all teachers of Greek. D. Appleton & Co.

A History of Modern Europe. By Merrick Whitcomb, Professor of History, University of Cincinnati. The period considered lies within the time of the Renaissance and the present day, with the greater emphasis placed upon the contemporary period. In this the author departs from most of the school histories now in use; the growing world-interests of American students and peoples demand that greater attention be given to men and events of recent times than to those of hoaried past. The expansion of the nineteenth century requires a corresponding contraction in the earlier centuries, and it is well that it is done. Dr. Whitcomb has a virile style and presents his facts and deductions fearlessly and honestly. D. Appleton & Co.

German Grammar. By Marion D. Learned. The author believes there is need for a new grammar and on his belief has constructed a text-book which differs in many particulars from the ordinary grammar. In arrangement, exercises, vocabulary, orthography, and terminology the changes are decided innovations and are such as will commend themselves to teachers of German. Substantial and frequent exercises accompany every new principle of the grammar, and the student must make thorough progress when using this text-book in acquiring a systematic knowledge of the principles of German and a wide range of vocabulary and idiom of modern German. D. Appleton & Co.

Beginnings of Rhetoric and Composition. By Adams Sherman Hill, of Harvard University. Dr. Hill's book is a model of clearness and accuracy; it is stimulating and vigorous, replete with graphic directions and illuminating illustrations. The author teaches young writers to express themselves correctly, not by dry mechanical devices, but by inciting them to put their natural selves into their compositions. The book aims to remove the obstacles that lie between what they think and what they write. It lays stress on correct rather than incorrect forms, and on better rather than on worse modes of expression. It is a most valuable addition to Dr. Hill's series of text-books on the English language; its use means surer thinkers and clearer writers. It is altogether the best book of its kind. American Book Company.

Fabulæ Faciles. Edited by John Copeland Kirtland, Jr. Ritchie's famous first Latin reader has been prepared for use by Professor Kirtland, who has made several changes in the text; long vowels have been marked, the orthography of Latin words has been brought into conformity with the practice in our schools, and the text made to approximate more closely to our rather strict notions of the standards of model prose. The notes are entirely new, and are suggestive rather than technical; there are no references to the grammars. For a first Latin book the Fabulæ will be found to be a valuable introduction to the classic prose. Longmans, Green & Co.

Hero Stories from American History. By Albert F. Blaisdell and Francis K. Ball. This is designed for use in the fifth and sixth grades of elementary schools as a supplementary reader to the history text-book. The stories are thrillingly told and give color to the dry recital of historical facts in which the text-book abounds. The authors have made judicious selection of graphic events and their style is admirable and gripping. It is abundantly illustrated with cuts especially made for the book. Ginn & Co.

First Lessons in United States History. By Edward Channing. This is a well written, readable history for the lower grades that may be used either as a text-book or supplementary reader. Professor Channing's style is graphic and he seizes the salient points of our history and makes them interesting and forceful. The book is embellished with six full-page colored illustrations and many line cuts. The Macmillan Company.

Anthology of English Poetry. By Robert N. Whiteford. The book contains poems from Beowulf to Kipling, and is designed for use in secondary schools, colleges and general literature classes. The poems selected are for the most part those that have been classified as the masterpieces of English poetry, and these are linked together by notes and quotations calculated to make pupils susceptible to philosophic and æsthetic criticism. Its use in schools for loving, systematic study of poetry will go far to waken a continuing interest in "thoughts that breathe and live." Benj. H. Sanborn & Co.

Conquering Success; or, Life in Earnest, by William Mathews. Mr. Mathews is probably best known as the author of "Getting On in the World," a book which, on its publication thirty years ago, scored an extraordinary success. "Conquering Success," also addressed to young men on the threshold of life, is written with all the author's old-time earnestness and enthusiasm, and is equipped with a wealth of anecdote and example, which makes it an unusually interesting as well as a very helpful book. Houghton, Mifflin & Co. Price, $1.50.

Barbe of Grand Bayou. By John Oxenham. It is refreshing to read a love story the scene of which is laid in the circle of the lowly instead of in "society." This tale is one of the dramatic experiences of two humble peasant folk, who had all the romantic human passions and adventures that are sometimes erroneously supposed to belong only to the "four hundred." Barbe, Pierre, Gaudriol, and Alain are strongly drawn and interesting characters. In the last half of the volume the author gives his imagination free rein, and taxes severely the credulity of the reader. But, nevertheless, the book is thoroughly readable, and leaves a pleasant impression upon the mind. New York; Dodd, Mead & Co.

The Moth Book. By W. J. Holland. This is a magnificent volume, elaborately illustrated with full-page color plates and numerous wood cuts. It is intended as a popular guide to a knowledge of the moths of North America. It is a companion to Dr. Holland's "The Butterfly Book," which practically revolutionized the study of this most interesting and beautiful class of insects. The moths of North America are very numerous and beautiful, and also are of great economic importance. Such subjects as The Method of Collecting Specimens, The History of Silk Work Culture, The Life History and Anatomy of Moths, The Best Methods of Preventing the Ravages of Destructive Moths, etc., are considered. The work is practically exhaustive, dealing with the natural history and economic relations, the literature and bibliography of the moth. The type is large, and there are fifteen hundred photographs in the color plates, and three hundred text cuts. It is published at $4, and is the latest addition to their well-known "Nature Library," by Doubleday, Page & Co.

How George Rogers Clark Won the Northwest. By Reuben Gold Thwaites. This is a collection of essays on the history of the Middle Northwest,—Ohio, Indiana, Illinois, Michigan and Wisconsin. The narrative ranges from the early days of the French fur traders, who loved their pipe and bowl and fiddle, through the British conquest of these peaceful people and on through the American conquest of the British. The division of the Northwest into states and the Black Hawk War, the last Indian uprising in that region, complete the narrative. There is added an account of the collecting of valuable data of this Western history, left in manuscript by Lyman Copeland Draper, the collection having now become famous. The book is an interesting and instructive contribution to the history of that part of the country which is necessarily more meagre in records than the Atlantic States. Chicago: A. C. McClurg & Co.

The Pope Bicycle Daily Memoranda Calendar. The reissue of the Pope Bicycle Daily-leaf Calendar may be considered the opening gun proclaiming the natural and healthful return of bicycling. Col. Albert A. Pope, the founder of our bicycle industries and the pioneer in the Good Roads Movement, is again at the head of the bicycle industry. Upon the three hundred and sixty-six calendar leaves are freshly written lines, from the pens of our greatest college presidents, doctors, clergymen, statesmen, and other eminent men and women, all of them enthusiastically supporting bicycling. Half of each leaf is blank for memoranda. This calendar is free at the Pope Manufacturing Company's stores, or any of our readers can obtain it by sending five two-cent stamps to the Pope Manufacturing Co., Hartford, Conn., or 143 Sigel Street, Chicago, Ill.

A Handbook of Modern Japan. By Ernest W. Clement. The character of old Japan, the wonderfully rapid changes in fifty years, and the resulting new Japan are portrayed in this book with attractive skill. It is evidently a faithful account and clear analysis of conditions, public and private, of personalities, physical, mental and religious, of the Japanese people, and they are those which the general reader most wishes to know. All are treated with a detail which gives an immense amount of information, but with a vigor which prevents weariness in the reading. When one has finished there remains in the mind a vivid picture, as of a panorama, of Japan passing from the old conditions to the new, in rapid on-going. It is a good book to have in the home for reading, and to keep on the shelves for reference. Maps and illustrations are abundant, and there is a valuable bibliography of English literature, and also Japanese and French, concerning Japan. A. C. McClurg & Co., Chicago.

Genetic Psychology for Teachers. By Charles Hubbard Judd, Ph.D., Instructor in psychology at Yale University. This is a late volume of the voluminous and most excellent International Series, edited by Dr. William T. Harris, and published by the Appletons. The material of the book has been drawn from original sources of experimental psychology. This is almost a modern science. At any rate, under the influence of Charles Darwin and the late Herbert Spencer the science has been revolutionized. The present volume is thoroughly up-to-date. It is the work of a scholar of the first grade, and will be welcomed by all students of pedagogy as well as of the general subject of philosophy. Included in the book is a telling criticism of Colonel Parker's method of teaching arithmetic. We find the book fully up to the high watermark of the other books of this series. D. Appleton & Co. Price, $1.20 net.

Select Statutes and other Documents Illustrative of the History of the United States, 1861–1898. Edited with notes by William MacDonald. This book opens with the call for 75,000 volunteers in April, 1861, and closes with the Treaty of Paris, December 10, 1898. Every intelligent person will recognize the great importance of the period of history covered by these dates. The most important documents of the period are selected by the author and here presented in full, or such extracts made from them as will give a clear idea of the purport of the same. As a reference book it will be exceedingly useful to careful students of our country's history, and will make easier the systematic study of the period of which it treats. The Macmillan Company. Price, $2.

New Fortunes. By Mabel Earle. This story is strong in its large atmosphere of Western nature and healthful human character. The pictures are vivid with the steepness of the cañons, the purple of the great mountains, and even the odor of the sage brush, which takes its part in suggestion of the grandeur to which it belongs. The human nature is full of the sweetness of home life, mixed with the stronger qualities. The bravery of the girl heroine is not the mere momentary courage of occasional crises. She has that, magnificently, but it is based on the deeper bravery of every-day living, which meets the commonplace hardships and conquers them with as sure an aim and as steady a heart as that with which she brought down with her gun the marauding bear. A. S. Barnes & Co., New York.

Nerves in Disorder. By A. T. Schofield, M.D. This new book aims to dispel ignorance regarding all functional nervous diseases and to set forth scientific principles for successfully treating these troubles, not only by physicians but also by the sufferers themselves. He shows how to find out the causes of this wear and tear of the nerves; cites many cases of sufferers; explains many cases of remarkable cures. In regulating the economy of health, in attaining the even balance between body and mind vigor, in avoiding, checking, or curing all forms of nervous troubles, this work will be found invaluable to both physicians and laymen. To teachers it will be a suggestive and helpful work; it will save many a doctor's bill and prevent many a breakdown. Funk & Wagnalls Company.

On the Storied Ohio. By Reuben Gold Thwaites. This book is just as good reading as it was under the name of "Afloat on the Ohio," when it was first published in 1897. It is an account of a row-boat voyage made by the author throughout the entire length of the Ohio, and he brings most interestingly to mind the historical events that happened on the banks of the river. The book is a valuable addition to popular American history, and will serve admirably as a guide to writers who may be tempted to do a similar work for other historic streams. Several excellent modern photographic views of the Ohio River accompany the text. Chicago: A. C. McClurg & Co., 1903.

The Silent Maid. By Frederic W. Pangborn. This brief tale is evidently of German origin, and the author has done hardly more than translate the rhythmic measures of the original into the form of prose. The poetic form is discernible all the way along. The story may be useful in stimulating the imagination, but it "harks back" to an earlier age which is happily outgrown. L. C. Page & Co.

Allen and Greenough's New Latin Grammar for Schools and Colleges. Allen and Greenough's Grammar is so well known and has been so long before the public that any commendatory words of ours are unnecessary. Its high reputation has been sustained through a period of fifteen years. It is probably more generally used than any other Latin grammar published. The present work is a careful revision of the edition of 1888. This revision was planned and begun during the life of Professor Greenough, and has been carried out in accordance with the principles established by him. The arrangement has been improved, and the whole work brought into line with the more recent discoveries in the realm of philology. It will undoubtedly remain, as it has been, the standard of comparison for other Latin grammars. Ginn & Co.

Macaulay's Life of Johnson. Edited by Albert Perry Walker. For schools where preparation for examinations makes necessary the study of "Macaulay's Life of Johnson," Mr. Walker's edition will be found to be most serviceable through direct help and wise suggestion. The annotations are lucid and concise, and consist of tables, bibliographies, explanatory indices, list of periodicals and pamphlets, descriptive list of Johnson's works, Macaulay's life, notes, etc. The text is not edited to demonstrate the erudition of the editor, but to give the student every reasonable aid and suggestion to the end that he may gain an appreciation of the marvelous style of Macaulay and come to know somewhat of the subject of the essay. By the book the study is made pleasant, the end profitable. D. C. Heath & Co.

. Zoology. By Buel P. Colton. This is a practical working book on the study of natural history. In a manner that is at once elaborate and vivid the author introduces the student directly to the investigation of animals, the grasshopper being the first considered. There is a striking absence of fine writing and exploitation of fanciful theories in the book, the dominant idea being to enlist the student's interest and attention at the very outset, and to carry this along with increasing power. The book is in two parts, the first treating of the descriptive features, the second of the practical. If there were no other studies in the curriculum besides natural history, and if the student had no divided interest in that study, he might well confine his attention to the observational and inferential study of animals, following the precepts of Agassiz; but with the crowded course of study in our high and secondary schools, and with the limited time at the disposal of the student to pursue the study of natural history, to demand of him that he shall make it a field and laboratory study is to ask the impossible and invite defeat. Yet for the most part, natural history text-books have been written with the distinct purpose of driving the student afield to study and glean facts. The results have been deplorable; interest in the study has been at a low ebb, and for the most part it has been an unattractive study. It is only on the advent of such a work as Professor Colton's that a student can learn what can be really done by a course in the subject, studied along right and practical lines. The book teems with facts and explanations. It suggests that these be supplemented with those gained by the student by the use of his eyes and reason. The practical part of the book invites with searching questions and close analysis to fullest study compatible with the student's time and ability. Viewed in the light of a working text-book in natural history, it is one of the most satisfactory and sensible yet put forth. An examination will disclose merits most commendable. Boston: D. C. Heath & Co.

The Modern Age. By Philip Van Ness Myers. In the series of Mediæval and Modern History, Part II. This is a companion volume to the author's "Middle Ages." The book is intended as a school text for students of history who have begun with the history of Rome and Greece, and followed on with English history from the earliest times, through the Middle Ages, to the modern period. The cordial reception accorded the former work paves the way for a ready acceptance of the present volume. The author is a philosophical historian, for he notes the causes of the events studied and shows their connection with that which follows. The paragraphing is very helpful, the leading theme in each paragraph being thrown out in heavy face type, thus facilitating easy memorizing. It will be a very useful book in classes of history. Ginn & Co. Price, $1.25.

The High School Choralist. By Charles E. Whiting. Mr. Whiting was formerly a teacher of music in the public schools of Boston, and is author of many text-books in music. He is abundantly qualified to make a song book for choruses in high schools, academies, musical associations, and the home circle. The drill exercises and solfeggios are admirably arranged, with distinct design to lead up to the difficult songs in the book. The music of the book is of the highest and purest order possible. Nothing of a meretricious or flippant nature has been suffered to find lodgment in the book; it is the brightest and best obtainable, altogether melodic and tuneful, and altogether singable. Among the musical authors represented are Dupont, Hatton, Abt, Smart, Moscheles, Denza, Booth, Arditi, Willemsen, Kinross, Arne, Geibel, and others. For the most part the songs are either new or have never been before arranged for school use. Mr. Whiting contributes a half dozen delightful and stirring compositions, songs that will find grateful acceptance in the schools. The book consists of a collection of dignified, expressive, suitable, and worthy songs, and is a valuable addition to the music course of high schools. Boston: D. C. Heath & Co.

We have received the following books for review in EDUCATION:—

Kinder-Und Hausmarchen. By Brüder Grimm. Edited by B. J. Vos. American Book Company.

Elementary Geometry, Plane. By James McMahon. American Book Company.

A Practical Course in Spanish. By H. M. Monsanto, A.M., and Louis A. Languellier, LL.D. Revised by Freeman M. Josselyn, Jr. American Book Company.

Composition and Rhetoric. By Maude L. Radford. Hinds & Noble.

Elementary Plane Geometry. By Alfred Baker. Ginn & Co. Mailing price, 55 cents.

School Management. By Samuel T. Dutton. Chas. Scribner's Sons.

Gareth and Lynette and other Idylls. By Alfred Tennyson. With an introduction and notes by Edward Everett Hale, Jr., Ph.D. University Publishing Company.

The Cynic's Calendar of Revised Wisdom for 1904. By Oliver Herford, Ethel Watts Mumford, and Addison Mizner. Paul Elder & Co.

Stories of the Ancient Greeks. By Charles D. Shaw. Ginn & Co. Mailing price, 70 cents.

Ivanhoe. By Sir Walter Scott. Edited with introduction and notes by Carle E. Tucker Dracass. D. Appleton & Co. Price, 60 cents net.

Present College Questions. By Chas. W. Eliot, Andrew F. West, William R. Harper and Nicholas Murray Butler. D. Appleton & Co.

Elements of Political Economy. By J. Shield Nicholson, M.A., D.Sc. The Macmillan Company.

Elementary History of the United States. By H. W. Hazen, A.M. The Morse Company.

The Force of Mind; or, The Mental Factor in Medicine. By Alfred T. Schofield, M.D. Funk & Wagnalls Co. Price, $2.

The Book of the Short Story. Edited by Alexander Jessup and Henry Seidel Canby. D. Appleton & Co.

Physical Laboratory Manual. By H. N. Chute, M.S. D. C. Heath & Co. Price, 80 cents.

The International Education Series: Vol. LVI, *The Evolution of the Elementary Schools of Great Britain.* By James C. Greenough, A.M., LL.D. Edited by W. T. Harris, LL.D. D. Appleton & Co.

The Flood of 1903. Chicago & Alton Railway.

Standard Literature Series: The Young Marooners. By F. R. Goulding. Edited and adapted for school reading. University Publishing Company.

A First Book in Business Methods. By William P. Teller and Henry E. Brown. Rand, McNally & Co.

The Relations between Freedom and Responsibility in the Evolution of Democratic Government. By Arthur Twining Hadley. Chas. Scribner's Sons.

The Canterbury Classics: Treasure Island. By Robert Louis Stevenson. Edited by Theda Gildemeister. Rand, McNally & Co.

Annual Reports of the Department of the Interior, 1902. Vol. I. Commissioner of Education. Washington: Government Printing Office.

New Songs for Male Quartets. Compiled and arranged by Walter Howe Jones. Hinds & Noble.

An Elementary Geography. By Charles F. King. Lothrop Publishing Company. Price, 65 cents.

The Moth Book. By W. J. Holland. Doubleday, Page & Co. Price, $4.

Periodical Notes

The Century has led American magazines for more than thirty years; it publishes articles that make people think, stories that entertain and are literature, pictures by the world's greatest illustrators.—*The Popular Science Monthly* for December opens with an article on recent theories in regard to the determination of sex, by Prof. T. H. Morgan, whose brilliant researches on artificial fertilization and other subjects are well known.—The prospectus of *McClure's Magazine* for 1904 is attractive. Great men, great achievements, and the newest knowledge will be the subjects of many special articles.—Mrs. Lewis and Mrs. Gibson, of Cambridge, England, according to *Current Literature*, have made discoveries in old Bible manuscripts that have given them fame among paleographic scholars. See the December number.—Edwin A. Abbey's painting and drawings, made to illustrate the tragedy of King Richard III, are reproduced in tint in *Harper's Magazine* for January. The critical comment on the play, accompanying the pictures, is by the English author and critic, Ernest Rhys.—"We know but little of joy; and as for the joy of living, most of us have missed that altogether"—the lack of happiness in the world and the unreasonableness of such a state of affairs is the subject of an inspiring paper by Lillie Hamilton French, in the January *Delineator*.—"The Mothers' Advisory Club" is a new department in *The Designer*, to which all who have to do with little folks are invited to send questions and suggestions, for the best of which cash remuneration is made.